

METHOD OF TEST FOR DETERMINING THE QUANTITY OF ASPHALT REJUVENATING AGENT REQUIRED FOR AN ASPHALTIC PAVEMENT

(A Modification of California Test No. 345)

SCOPE

1. (a) This method of test describes the procedure for determining the quantity of asphalt rejuvenating agent an asphaltic pavement will absorb in a specified period of time.

NOTE: This test is used primarily for maintenance purposes.

(b) This test method may involve hazardous material, operations, or equipment. This test method does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

(c) See Appendix A1 of the Materials Testing Manual for information regarding the procedure to be used for rounding numbers to the required degree of accuracy.

(d) Metric (SI) units and values are shown in this test method with English units and values following in parentheses. Values given for metric and English units may be numerically equivalent (soft converted) for the associated units, or they may be given as rounded or rationalized values (hard converted). Either the metric or English units along with their corresponding values shall be used in accordance with applicable specifications. See Appendix A2 of the Materials Testing Manual for additional information on the metric system.

APPARATUS

2. Apparatus for this test procedure shall consist of the following:

- (a) 1 - Aluminum template 152 mm (6") diameter with handle.
- (b) 1 - Caulking gun with a 127 mm (5") piece of 6.35 mm (1/4") copper tubing with cap.
- (c) 1 - 25 mL graduated cylinder (plastic or glass).
- (d) 1 - 127 mm (5") inch trowel.
- (e) 2 - small stiff bristle brushes.
- (f) 2 - 3.8 liter (1 gallon) friction top cans. One for new medium weight chassis grease. One for used grease.
- (g) 1 - 203 mm (8") spatula.
- (h) 2 - pieces of yellow lumber crayon.
- (i) 1 - stop watch with 60 second dial.

MATERIAL

- 3. The following materials are required:
 - (a) Medium weight chassis grease.
 - (b) A liter (quart) can containing a dilution of 2 parts rejuvenating agent and one part distilled water.

PROCEDURE

- 4.
 - (a) With lumber crayon and template, draw a 152 mm (6") diameter circle on the pavement.
 - (b) Extrude grease from the caulking gun on the circle. The diameter of the grease should be about 6 mm (1/4").
 - (c) Run finger around the outside of the grease ring, pushing a small amount of grease into the pavement. This will form a sealed reservoir for the asphalt rejuvenating agent (2:1 dilution).

(d) Measure 8.3 mL of asphalt rejuvenating agent, 2:1 dilution, in the graduate and pour into grease ring. Start stop watch and quickly brush agent uniformly over the area within the grease ring.

(e) Record the time required for the rejuvenating agent to completely penetrate the surface. Complete penetration is generally indicated by a loss in color of the rejuvenating agent, giving a dull dark appearance to the surface.

NOTE: Loss of color can also occur when evaporation of the water takes place leaving a thin film of the residue on the surface of the pavement giving a shiny appearance. In this case penetration has not occurred.

(f) If 8.3 mL is absorbed within a 15 minute interval, make a new grease ring and repeat test with additional testing solution in increments of 8.3 mL until time of penetration just exceeds 15 minutes.

(g) If 8.3 mL is not absorbed within the 15 minute period, repeat the test using 4.1 mL.

NOTE: 4.1 mL is equivalent to 0.23 L/m^2 (0.05 gal./sq. yd.)
spread rate.

8.3 mL is equivalent to 0.45 L/m^2 (0.10 gal./sq. yd.)
spread rate.

16.6 mL is equivalent to 0.91 L/m^2 (0.20 gal./sq. yd.)
spread rate.

(h) If an application rate of 0.91 L/m^2 (0.20 gal./sq. yd.) [16.6 mL] is exceeded, the effect of rejuvenating agent on the properties of the asphaltic pavement (for example, stability/flow, voids, etc.) shall be evaluated.

(i) Graduate can be easily cleaned with water.

(j) Pick up grease with trowel and place in 3.8 liter (1 gallon) can for used grease. Do not mix used grease with new grease.

PROCEDURE FOR DETERMINING PAVEMENT REQUIREMENTS

5. The following procedure is recommended for obtaining the average absorption rate or quantity of rejuvenating agent required for a given section of highway.

(a) In any travel lane, determine the absorption at 8 meter (25 foot) intervals in the outer wheel path, inner wheel path, and between wheel paths, respectively. The three readings should be averaged to obtain the reading for the test area.

(b) This procedure should be repeated at intervals of approximately 600 meters (2000 feet).

REFERENCE

6. "Method of Test for Determining Quantity and Rate of Absorption of Reclamite into an Asphalt Pavement" by Golden Bear Oil Company, Bakersfield, California.